

WHAT IS CLAIMED IS:

1. An IC card comprising:

a card substrate including,

a semiconductor integrated circuit chip
mounted thereon; and

a plurality of connector terminals formed
thereon;

said connector terminals being exposed from a
casing;

wherein said connector terminals are laid out in
plural sequences in staggered form between the sequences
adjacent to one another forward and backward as viewed in
an IC card inserting direction.

2. An IC card comprising:

a card substrate including,

a semiconductor integrated circuit chip
mounted thereon; and

a plurality of connector terminals formed
thereon;

said connector terminals being exposed from a
casing;

wherein said connector terminals include an
arrangement of two sequences formed back and forth as
viewed in an IC card inserting direction, and an
arrangement of terminal-to-terminal areas of connector
terminals laid out in a first sequence and an arrangement

of terminal-to-terminal areas of connector terminals laid out in a second sequence are shifted from each other in a sequence direction.

3. An IC card comprising:

a card substrate including,

a semiconductor integrated circuit chip mounted thereon; and

a plurality of connector terminals formed thereon;

said connector terminals being exposed from a casing;

wherein said connector terminals include an arrangement of two sequences formed back and forth as viewed in an IC card inserting direction, and a sequence-directional layout of connector terminals laid out in a first sequence and a sequence-directional layout of connector terminals laid out in a second sequence are shifted from each other in a sequence direction.

4. The IC card according to claim 3, wherein the connector terminal at one end extending in a sequence direction, of the connector terminals laid out in the second sequence extends to a position where said connector terminal adjoins the connector terminal as viewed in a sequence direction, at one end extending in the sequence direction, of the connector terminals laid

out in the first sequence, and

the connector terminal at the other end extending in the sequence direction, of the connector terminals laid out in the second sequence extends to a position where said connector terminal adjoins the connector terminal as viewed in the sequence direction, at the other end extending in the sequence direction, of the connector terminals laid out in the first sequence.

5. The IC card according to claim 1, wherein said connector terminals include one source voltage supply terminal, two ground voltage supply terminals, and one clock signal input terminal.

6. The IC card according to claim 5, wherein said connector terminals include data terminals corresponding to four bits and are provided as nine in total.

7. The IC card according to claim 5, wherein said connector terminals include data terminals corresponding to eight bits and are provided as thirteen in total.

8. The IC card according to claim 1, wherein said semiconductor chip has a controller chip electrically connected to the connector terminals,

said connector terminals include data terminals corresponding to plural bits,

said controller chip has a one-bit mode using one bit of the data terminals corresponding to the plural bits, said mode being set in response to the state of a predetermined connector terminal or the state of an input from the predetermined connector terminal, and a plural-bit mode which is used to perform plural-bit parallel input/output using the data terminals corresponding to the plural bits.

9. The IC card according to claim 1, wherein said semiconductor chip has a controller chip electrically connected to the connector terminals,

said connector terminals include data terminals corresponding to eight bits,

said controller chip has a one-bit mode using one bit of the data terminals corresponding to the eight bits, said mode being set in response to the state of a predetermined connector terminal or the state of an input from the predetermined connector terminal, a four-bit mode which is used to perform four-bit parallel input/output using four bits of the eight-bit data terminals, and an eight-bit mode which is used to perform eight-bit parallel input/output using the data terminals corresponding to the eight bits.

10. The IC card according to claim 8, further including a single or plural non-volatile memory chips

electrically connected to the controller chip as the semiconductor chips, and

wherein said controller chip has a memory control function for controlling a read/write operation with respect to said non-volatile memory chips in accordance with instructions given from outside.

11. The IC card according to claim 10, wherein said controller chip further has a security function for encoding data written into said each non-volatile memory chip, and decoding the data read from said non-volatile memory chip.

12. The IC card according to claim 1, wherein a connector terminal sequence corresponding to a first sequence as viewed in an IC card inserting direction has a connector terminal for the supply of a source voltage, and a connector terminal sequence corresponding to a second sequence has terminal-to-terminal areas at positions adjacent to the connector terminal for the source voltage supply.

13. The IC card according to claim 1, wherein a connector terminal sequence corresponding to a first sequence as viewed in an IC card inserting direction has a connector terminal in which broad terminal-to-terminal distance is set to portions where the connector terminal

faces a connector terminal sequence corresponding to a second sequence.

14. An IC card comprising:

a card substrate including,

a semiconductor integrated circuit chip mounted thereon; and

a plurality of connector terminals formed thereon;

said connector terminals being exposed from one surface of a casing;

wherein said casing has a guide portion formed by a slant surface or circular arc extending from a leading edge portion extending at a front end in an IC card inserting direction to said one surface of the casing, and the slant surface or circular arc of the guide portion is larger than a slant surface or circular arc formed in each of other edge portions.

15. An IC card comprising:

a card substrate,

a memory chip and a controller chip which controls said memory chip respectively mounted on the card substrate, and

a plurality of connector terminals and a plurality of connecting pads respectively electrically connected to said plurality of connector terminals formed on the card

substrate together with said plurality of connector terminals,

wherein the layout on said card substrate is set in order of said connector terminals, said controller chip and said memory chips with respect to one side of said card substrate, and said connector terminals are exposed from a casing,

said controller chip has a shape long along the direction of the arrangement of said connector terminals and includes a plurality of connector interface terminals connected to said connector terminals through said connecting pads on the connector terminal side, and a plurality of memory interface terminals connected to the corresponding memory chip on the memory chip side, and

said each memory chip has a plurality of controller interface terminals connected to the corresponding controller chip on the controller chip side.

16. The IC card according to claim 15, wherein said connecting pads are respectively electrically connected to the connector interface terminals of said controller chip through bonding wires, and

the memory interface terminals of said controller chip are respectively electrically connected to the controller interface terminals of said each memory chip through bonding wires.

17. An IC card comprising:
a card substrate,
a semiconductor integrated circuit chip mounted on
the card substrate, and
a plurality of connector terminals formed on the
card substrate,
said connector terminals being exposed from one
surface of a casing,
wherein said casing has character information
printed on the surface thereof or concavely formed on the
surface thereof.

18. An IC card comprising:
a card substrate,
a semiconductor integrated circuit chip mounted on
the card substrate, and
a plurality of connector terminals formed on the
card substrate,
said connector terminals being exposed from one
surface of a casing,
wherein said casing has an indication mark
indicative of an IC card inserting direction, which is
printed on the surface thereof or concavely formed in the
surface thereof.

19. An IC card comprising:
a card substrate,

a semiconductor integrated circuit chip mounted on the card substrate, and

a plurality of connector terminals formed on the card substrate,

said connector terminals being exposed from one surface of a casing,

wherein said casing has a through hole formed therein so as to extend through the front and back thereof.

20. The IC card according to claim 19, further including a terminal protective cover which is pivoted about said through hole and covers said connector terminals in a state of being superimposed on said casing.

21. An IC card comprising:

a card substrate,

a memory chip and a controller chip which controls said memory chip respectively mounted on one surface of the card substrate, and

a plurality of connector terminals formed on the other surface of the card substrate;

said connector terminals being exposed from a casing,

wherein said card substrate further has test terminals which connect said controller chip to said memory chips.

22. The IC card according to claim 21, wherein said test terminals are formed on the one surface of said card substrate.

23. An IC card comprising:

a card substrate,

a memory chip and a controller chip which controls said memory chip respectively mounted on the card substrate, and

a plurality of connector terminals and a plurality of connecting pads respectively electrically connected to said plurality of connector terminals formed on the card substrate together with said plurality of connector terminals,

said connector terminals being exposed from a casing,

wherein said controller chip has a plurality of connector interface terminals respectively electrically connected to said connector terminals through said connecting pads, and a plurality of memory interface terminals electrically connected to said each memory chip,

said each memory chip has a plurality of controller interface terminals electrically connected to said controller chip, and

said card substrate further includes a plurality of test terminals respectively electrically connected to the

memory interface terminals of said controller chip and the controller interface terminals of said each memory chip.

24. The IC card according to claim 23, wherein said card substrate further has a control terminal for supplying a control signal for controlling said each memory interface terminal of said controller chip to a high impedance state to said controller chip.

25. A data processing system comprising:

a card socket in which an IC card as defined in claim 8 is applicable, said card socket including a plurality of socket terminals respectively electrically connected to connector terminals of the mounted IC card; and

a card interface controller capable of selectively setting a one-bit mode or plural-bit mode to said IC card through the socket terminals,

wherein said card interface controller is placed under the control of a host control device.

26. A data processing system comprising:

a card socket in which an IC card as defined in claim 9 is applicable, said card socket including a plurality of socket terminals respectively electrically connected to connector terminals of the mounted IC card;

and

a card interface controller capable of selectively setting a one-bit mode, a four-bit mode or an eight-bit mode to said IC card through the socket terminals,

wherein said card interface controller is placed under the control of a host control device.

27. An IC card comprising:

a plurality of memory chips mounted in stacked form; and

a controller chip mounted in a single layer,

wherein said controller chip is thicker than said each memory chip.

28. The IC card according to claim 27, wherein a post-mounting height of said memory chip is equal to or lower than a post-mounting height of said plurality of memory chips mounted in the stacked form.